LOW PHASE NOISE, WIDE TUNE RANGE SAW OSCILLATORS AND METHODS OF OPERATING THE SAME

ABSTRACT OF THE DISCLOSURE

A two port, single pole SAW resonator is employed for a local oscillator to eliminate the secondary frequency responses of the prior art without adding additional inductances and capacitances within an amplifier stage. The stray capacitance which is seen within the equivalent circuit of a single pole, two port SAW resonator at a port for the SAW resonator is tuned out by coupling an appropriately sized inductance in parallel with that stray capacitance. Access to the series resonator within the SAW resonator equivalent circuit is thus provided, permitting direct tuning of the resonant frequency for the SAW resonator. The high Q of the SAW resonator ensures low phase noise/edge jitter, while direct tuning of the series resonator enables a wide tune range. The tunable SAW resonator circuit is thus well-suited for use in a low phase noise tunable oscillator employed, for instance, in clock recovery within SONET applications.